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THE PLANT DISEASE REPORTER

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THE PLANT DISEASE SURVEY

DIVISION OF MYCOLOGY AND DISEASE SURVEY

Vol. XVI March 15, 1932 Number 3

VEGETABLE CROPS

A SURVEY OF THE DISEASES OF SWEET POTATOES IN STORAGE IN VIRGINIA AND MARYLAND

Compiled by Paul R. Miller

A cooperative survey by James Godkin and L. C. Beamer of the Virginia Extension Division, R. A. Jehle, Maryland Extension Division, H. T. Cook, Virginia Truck Experiment Station, R. J. Haskell, Extension Service, U. S. D. A., Paul R. Miller, Plant Disease Survey, and the county agents of the seven counties surveyed, was made February 3 to 12, 1932, for the purpose of determining the occurrence and prevalence of diseases in sweet potato storage houses.

Estimates of the percentage of each disease were made by taking samples consisting of at least 100 potatoes from each grower. See Table 5.

Table 5. Sweet potato diseases found in storage in Virginia and Maryland.

County	Number bushels examined	No. growers reported	Amount of disease in percentage	Diseases: Black rot No. lots	Scurf No. lots	Soft rot No. lots	Dry rot No. lots	Surface rot No. lots	Pock No. lots	Charcoal rot No. lots
VIRGINIA										
Northampton	87,000	22	0	12	7	5		16		20
			1-5	5	6	9		2		1
			6-20	3	7	7		4		1
			21-75	1	1					
			76-100	1	1	1				
Nansemond	5,000	15	0	5	5	9	11	13		
			1-5	8	8	6	4	2		
			6-20	1	2					
			21-75	1						
			76-100							
Accomac	5,500	49	0	34	25	29	42	27		
			1-5	7	5	14	3	12		
			6-20	6	8	5	3	5		
			21-75	2	7	1	1	3		
			76-100		4			2		
Princess Ann	25,485	18	0	6	8	7	14	11		
			1-5	6	6	10	4	7		
			6-20	6	3	1				
			21-75		1					
			76-100							
MARYLAND										
Worcester	9,800	13	0	3	10	1			9	
			1-5	4		5			2	
			6-20	3		4			2	
			21-75	3	3	3				
			76-100							
Dorchester	41,000	9	0	3	2	2		3	2	
			1-5	2	1	3		3	5	
			6-20	4	5	3		3	2	
			21-75			1				
			76-100							
*Wicomico	49,000	20	0	10	8	5		3	6	
			1-5	8	7	11		1	9	
			6-20	2	4	3		5	3	
			21-75		1	1		11	2	
			76-100							

*1 lot in Wicomico County showed 2 per cent Mottle Necrosis.

POTATO LATE BLIGHT IN TEXAS

Mr. Henry L. Alsmeyer, county agent, reported the occurrence of late blight (Phytophthora infestans) on potatoes in the Rio Grande Valley in Texas in a letter to R. J. Haskell (February 8), as follows:

Late blight has been found on Irish potatoes in two different communities in the Valley. The fungus was identified by Mr. W. J. Bach, plant pathologist of the Valley Experiment Station. The blight has not spread very rapidly due to the weather we are having. There has been very little rain and plenty of sunshine. The temperature for January was above normal and February weather is starting out very much the same. The growers are making preparations to either spray or dust, using the 4-4-50 formula for spraying and the copper mono-hydrate dust for dusting purposes. In one weeks' time there were 15 high pressure sprayers with truck crop booms purchased by the growers.

TESTING IOWA WILT-RESISTANT WATERMELONS IN TEXAS

J. J. Taubenhaus and Walter N. Ezekiel

(Published with the approval of the Director
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of the Texas Agricultural Experiment Station)

Watermelon wilt caused by Fusarium niveum is quite destructive in the older watermelon-growing sections of Texas, particularly in Waller County and adjoining territories. The disease is also gradually gaining headway in the newer watermelon sections of the State.

In the fall of 1930, seed were secured of Pride of Muscatine, Iowa King, and Iowa Belle, three wilt-resistant varieties of watermelons developed by Mr. Layton of the Iowa Agricultural Experiment Station. These, together with the ordinary Tom Watson, were planted in a plot in wilt-infested soil at Prairie View, Waller County, Texas. This field had been in watermelons in 1926 and 1927, and again in 1929 and 1930, and during both of the latter years the percentage of wilt was as high as 30 to 40 per cent. The varieties were planted on April 3, 1932, using each variety in single rows, interspersed with rows of Tom Watson as checks, and duplicating the entire series again further down the field. Following two severe hailstorms during April, it was necessary to replant twice before a good stand was finally secured. The plants were given ordinary field culture and at the end of the season careful notes were taken of the prevalence of wilt and other diseases. Observations were made also of the edible and market qualities of the Iowa melons in contrast to the Tom Watson variety.

The results with reference to Fusarium wilt (Table 6) show that in this first test in Texas, the three varieties of Iowa watermelons were highly resistant to wilt. The Iowa Belle as well as the Tom Watson were badly affected by anthracnose, while the Pride of Muscatine and the Iowa King remained free from this disease. Under conditions of this test, the Pride of Muscatine appeared to be a shy bearer, but bore melons of good texture and taste. The Iowa King was more prolific but otherwise similar to Pride of Muscatine. The Iowa Belle showed numerous growth cracks, and was therefore considered undesirable although it bore well.

Table 6. Susceptibility of varieties of watermelons to watermelon wilt. Grown at Prairie View, Texas. Notes taken August 20, 1931.

Variety	Total number hills	Number of hills with Fusarium wilt	Percentage of plants with Fusarium wilt
Tom Watson (check)	410	198	48.2
Pride of Muscatine	50	2	4.
Iowa King	50	2	4.
Iowa Belle	50	2	4.

The susceptibility and adaptability of these varieties will be tested further under Texas conditions.

F R U I T D I S E A S E S

APPLE DISEASE RECORDS IN NEW JERSEY FOR THE PAST FIVE YEARS

Reported by the Department of Plant Pathology

1931 records from 126 orchards in different parts of the State showed an average of 3.6 per cent scab as compared with 6 per cent in 1930. In these same orchards 4.8 per cent "other diseases and insects" were reported in 1931 as compared with 8.1 per cent in 1930.

In Monmouth County in 1931, counts in different varieties in different orchards showed the following results: (sprayed orchards)

Variety	Number of Orchards	Percentage of Scab
Wealthy	9	0.2
Transparent	3	0.4
Grimes	5	0.4
Twenty Ounce	4	0.15
McIntosh	7	14.2
Baldwin	5	1.2
Duchess	8	0.1
English Codling	7	1.1
Rome	3	4.5
Delicious	5	2.8
Stayman	14	2.1

In Monmouth County records were collected in 24 orchards in 1931. Records were collected in approximately the same orchards in the past five years. The disease counts are given in Table 7.

Table 7. Amount of disease (sprayed orchards) in Monmouth County, New Jersey, from 1927 to 1931.

Year	Percentage of disease			
	Scab		Cedar Rust	
	Early Fruit	Late Fruit	Early Fruit	Late Fruit
1927	0.4	2.4	0.1	trace
1928	1.9	4.	0.1	trace
1929	2.3	3.5	0.1	trace
1930	1.2	2.4	1.2	trace
1931	0.3	3.6	1.1	trace

Similar records have been collected by the Extension Specialist in Horticulture in the various fruit growing counties of the State. The average scab counts for the State in sprayed orchards were:

Year	Percentage of Scab
1927	4.3
1928	5.3
1929	7.6
1930	6.
1931	3.6

Unsprayed Rome orchards in Burlington and Cumberland Counties showed respectively 43 and 97 per cent in 1930 and 72 and 81 per cent in 1931.

DISEASES OF FORAGE CROPS

CROWN ROT OF CLOVER IN KENTUCKY

W. D. Valleau reports (February 17) that "Crown rot (Sclerotinia trifoliorum) is already causing severe injury to a stand of crimson clover on the Station Farm at Lexington, and is killing red clover plants set in rows. Many of the dying plants are isolated from others. This is the earliest I have observed the disease in this State. Weather exceptionally warm and rainy."

DISEASES OF SPECIAL CROPS

PEANUT FACTORY SURVEY IN VIRGINIA

Paul R. Miller

Eight peanut factories located at Petersburg, Stoney Creek, Emporia, Franklin, and Suffolk, were visited February 1 and February 6, 1932.

An estimate of the diseased and damaged peanuts was made for the crop of 1931 and compared with the crop of 1930 at these various factories.

The percentage of "pick outs" ranged from 1/2 per cent to 2 per cent which is considerably lower than for the 1930 crop. This may be explained by the fact that there were no "saps"[1] this year and this grade formed the major portion of the "pick outs" last year. Fusarium sp. and an undetermined fungus which forms black sclerotial masses on peanut kernels seem to be the principal causes for the pick-outs this year, whereas last year they were due to saps and discoloration of the skin of the kernels. See Volume XV, Number 15, Plant Disease Reporter for damage estimates for 1930 crop.

[1] "Saps" is a trade term applied to small, leathery, hard undeveloped nuts resembling raisins in color and appearance.

"BRUISE SPOT" DISEASE OF CULTIVATED MUSHROOMS WIDESPREAD IN 1931-1932

E. B. Lambert

During the current winter months there have been an unusual number of complaints from mushroom growers of losses due to spots and blemishes on the caps of mushrooms. These complaints seem to be due partly to a greater percentage of spotted mushrooms and partly to the demoralized condition of the market which has made spotted mushrooms practically worthless. In many cases one-third of the crop was spotted, bringing 5 to 10 cents per three-pound basket whereas the unblemished packs sold for 50 cents to 75 cents.

The principal point of interest lies in the fact that the type of spot which is most troublesome in standard mushroom houses is quite different from the well known bacterial spot prevalent in caves and mines during the summer months. The new type of spot, often called "bruise spot," is bluish gray on the surface, dry, and usually sunken into the mushroom as if the presence of the spot has arrested the growth of that portion of the mushroom cap. On the other hand the "bacterial spot" due to Bacterium tolaasi (Paine) Elliott, is characteristically a slimy dark-brown surface blemish which usually does not penetrate the surface of the cap unless carried along with insect larvae or nematodes.

During the past year I have examined numerous spotted mushrooms and have always found a Verticillium sp. associated with these "bruise spots." Cultures of this Verticillium have been isolated from mushrooms grown in New York, Pennsylvania, Ohio, and Illinois. This fungus produces typical "bruise spots" when innoculated onto healthy mushroom caps and can be reisolated from them. It is probably closely related to Mycogone perniciosa Magnus but on potato dextrose agar or on mushroom tissue it does not produce the chlamydospores characteristic of Mycogone.

FURTHER REPORTS ON TOBACCO DOWNY MILDEW

Word was received (February 23) from S. G. Lehman that downy mildew (Peronospora hyoscyami) of tobacco has appeared in at least one plant bed in North Carolina. This bed is located near the South Carolina line in Robeson County. One of the earliest reports of the occurrence of the disease in North Carolina in 1931 was received from this vicinity

The disease has apparently not reappeared in Louisiana. On March 1, C. W. Edgerton wrote that Mr. Joe Lamendola, the Smith-Hughes teacher in St. James Parish, had examined practically every tobacco seed bed in that district and had found no trace of downy mildew.

On March 3, L. O. Gratz wrote that the disease had appeared in the Madison and Gadsden County shade tobacco sections of Florida simultaneously about February 23. Since then it has been found to be quite generally distributed in the seed beds over the entire tobacco section. In some cases the injury to these beds is very severe. The fungus has been spreading rapidly on some beds during the past week or ten days.

On March 8, Gratz wired that the disease was "general over the entire shade tobacco section," and added that while the "near freezing temperatures of March 6 and 7, caused no damage to tobacco the plants had been considerably bruised by wind and hard rain."

As noted in the February 15 issue of the Plant Disease Reporter (Volume 16, Page 16,) J. G. Gaines observed the disease sporadically in Southern Georgia in late December and again in late January.

His latest report, March 4, is as follows:

"Tobacco mildew is now known to be widespread in nine Georgia Counties, but all beds are not yet infected and conclusive reports have not been received from other Counties. At first affected plants seemed to recover, but in many instances the new growth was killed off as rapidly as it developed, thus resulting in an abnormally high percentage of kill. However, during the past week conditions have been less favorable for mildew in Tift County and the epidemic now seems much less serious than it did two weeks ago. The outcome will, unquestionably, depend on weather conditions."

In view of the facts that downy mildew had appeared two months earlier than in 1931 and was apparently causing more damage in Georgia, it seemed advisable to send out a statement of Gaines' admittedly incomplete and not wholly conclusive results on spraying for the control of this disease. This report which was mailed to pathologists in all tobacco growing States, February 26, is reproduced on Page 27.

Attention was also called to the fact that in Australia, where this downy mildew has long been known (usually under the name blue mold) it is extremely erratic in its appearance, under some conditions causing serious effects upon the seed beds, and that the usual practice there is to plant several seed beds at different times in the hope that one or more will develop free of this disease.

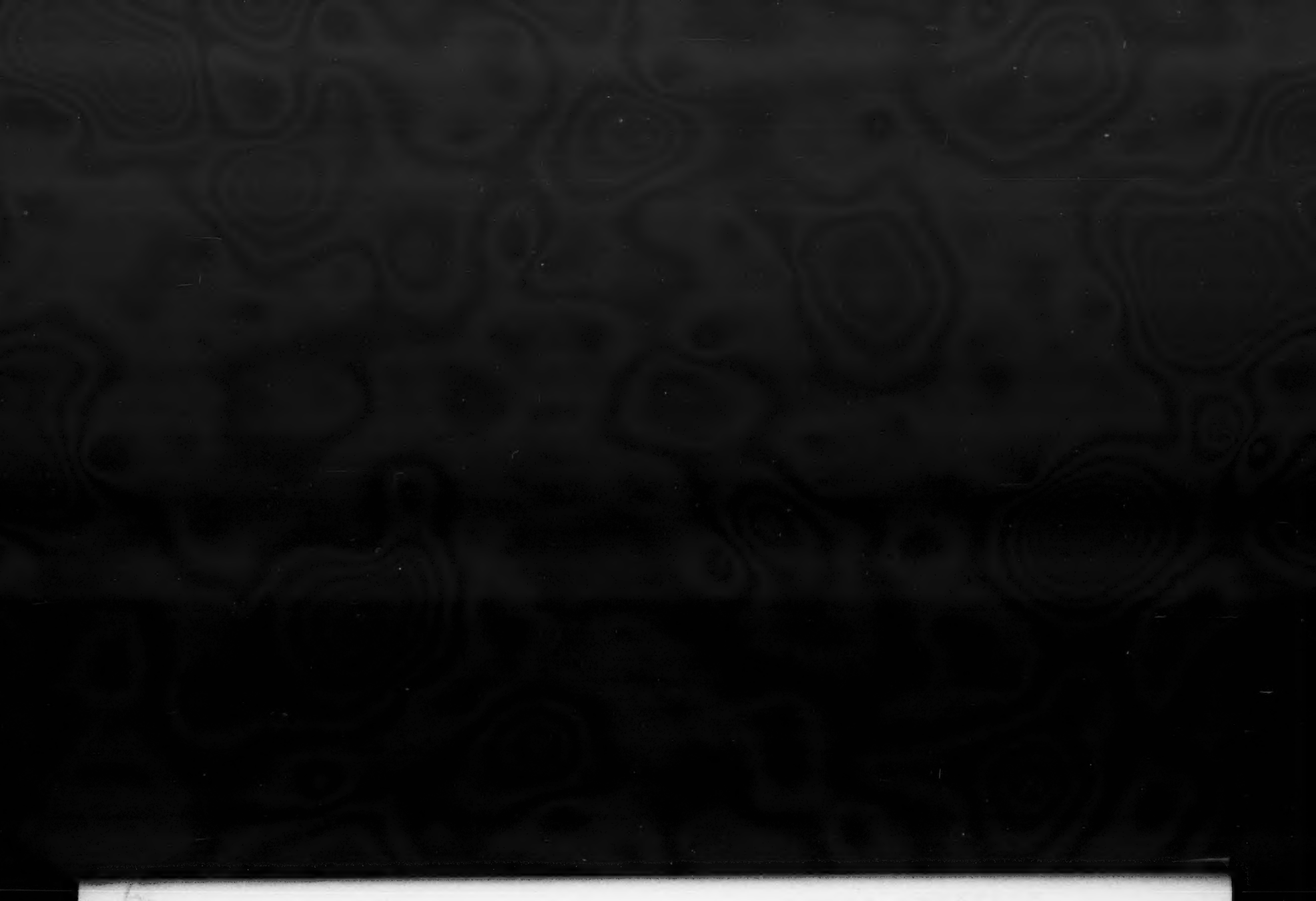
PRELIMINARY NOTES ON SPRAYING FOR THE CONTROL OF TOBACCO DOWNY MILDEW

J. G. Gaines

During the first half of February downy mildew appeared in many tobacco seed beds in seven counties of the Georgia belt. The disease is present in early beds where some of the plants are large enough to transplant and also on two weeks old seedlings. In a limited number of beds observed a large percentage of the plants have been killed and the remainder severely injured. But since those seedlings not killed are already showing signs of recovery, it is too early to estimate the extent of actual loss.

Preliminary tests at Tifton, Georgia, indicate that the disease may be partially controlled with 3-3-50 Bordeaux mixture. Beginning as soon as the seedlings were one week old, plant beds were sprayed at approximately 4-day intervals, the interval varying from 2 to 6 days depending on the rate of growth. Cloths were removed in order that beds might be more effectively sprayed. A sufficient pressure was used to produce a fine spray and to blow over some of the more erect leaves, thereby effecting a partial coverage of the lower surface.

One experiment was conducted on plants growing under cold-frame sash and where the bed was thoroughly splashed with water every one or two days. An area consisting of 12 square yards was sprayed during the last half of January and first of February, while a similar adjoining area in the same bed was left as a check. Mildew first appeared on the check plants February 8. On February 12 every unsprayed plant was severely affected with mildew, 12 per cent being killed outright; while only 2 per cent of the treated seedlings were severely diseased and none killed. But one week later 90 per cent of the sprayed plants were also just as severely affected, while those remaining in the check were beginning to recover.

Results were much more promising from two other beds covered with cheesecloth, and where the plants were watered with a fine spray to prevent splashing. Mildew symptoms first appeared in the checks February 8 and in the adjoining sprayed areas one week later. On February 23 more than 50 per cent of the unprotected plants were dead and the remainder severely diseased; while less than 10 per cent of the adjoining treated ones were seriously affected and none were killed. The plants nearest the checks were the first to become diseased in the treated plots.

Apparently spraying delayed general infections from one to two weeks, and in some tests a longer delay has been indicated. The spread of mildew through large sprayed beds has been less rapid than through unsprayed ones. The effectiveness of Bordeaux is believed to be governed by the completeness of coverage. A continuance of these tests will be necessary to determine whether mildew can be economically controlled by this method. A comparative test indicated that a 2-2-50 Bordeaux mixture was also partially effective. Tests with 20-80 copper lime dust were discontinued because this material caused serious burning.